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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application for Patent

FOR:

**REMOTE DEVICE MANAGEMENT IN GROUPED
SERVER ENVIRONMENT**

**APPEAL BRIEF
EX PARTE Alan T. RUBERG et al.**

**Application No. 09/612,141
Filed July 7, 2000
Technology Center/Art Unit 2143**

Submitted in accordance with 37 C.F.R. §41.37

CERTIFICATE OF MAILING

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I. REAL PARTY IN INTEREST

The real party in interest is Sun Microsystems, Inc., the assignee of the present application.

II. RELATED APPEALS AND INTERFERENCES

The undersigned is not aware of any related appeals or interferences.

III. STATUS OF THE CLAIMS

Claims 52-93 are pending in the subject application. Claims 52-93 have been finally rejected and are on appeal.

IV. STATUS OF THE AMENDMENTS

No amendments, cancellations, or other changes have been made after the Final Office Action of June 8, 2005.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a method and system managing remote devices in a grouped server environment.

Independent claim 52 defines a method for device management in a grouped server environment system. In this method, a request to control a device on a desktop unit (DTU) from a device service on a server is created. The request is received by a first device manager that is coupled to the device service. Once the request is received by the first device manager, the first device manager transfers the request to a second device manager in a second server (see, page 14, lines 19-24). The second device manager allocates the device to the requested device service and informs the first device manager of the allocation (see, page 10, lines 8-9). The device service then controls the device by implementing a device driver for the device (see, page 8, lines 29-30).

Independent claim 82 defines a grouped server system. The grouped server system includes a plurality of servers coupled to the DTUs through an interconnect (see, page 11,

lines 11-12). The server includes a device manager coupled to device service (see, page 14, lines 2-3). The device service implements a device driver for controlling a peripheral device coupled to the DTUs (See page 8, lines 29-30). The device managers on the servers broker control of the peripheral devices coupled to the DTUs to the device services. The device managers operate as a group (see, page 14, lines 19-25).

Independent claim 93 defines a computer readable medium for implementing an instruction set for maintaining a persistent connection between a device located on a desktop unit and a single device manager, which interfaces a device service with the device. The computer readable medium includes a first instruction set for establishing a first communication path between said desktop unit and a first device manager located in a first server (see, page 9, line 30 – page 10 line1). The computer readable medium further includes a second instruction set for establishing a second communication path between the desktop unit and a second device manager located in a second server so that when a failure of the first device manager occurs, connection to the device can be maintained through the second device manager (see, page 22, lines 25-29). The device includes a keyboard, a mouse, a speaker, a scanner or a microphone (see, page 7, lines 14-15).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented in appeal concern whether the rejections under 35 U.S.C. § 103(a) of claims under appeal are proper. The two issues therefore are as follows:

A. Whether claims 52, 53, 68, 69, 73, 74, 82, 87, 92, and 93 are patentable under 35 U.S.C. § 103(a) over U.S. Patent 6,628,415 B2 to Lawrence et al. (Lawrence) in view of U.S. Patent 6,389,589 B1 to Mishra et al. (Mishra).

(i) Neither Lawrence nor Mishra teaches a grouped server environment.

(ii) Lawrence does not teach transferring a request from a first device manager in a first server to a second device manager in a second server.

B. Whether claims 54-67, 78-81, 83-85, and 88-91 are patentable under 35 U.S.C. § 103(a) over Lawrence in view of Mishra.

(i) The combination of Lawrence in View of Mishra does not teach establishing a communication path between the first device manager and the second manager.

(ii) Neither Lawrence nor Mishra teaches controlling a device connected to a second server by a device service in a first server through a device manager in the second server.

VII. ARGUMENT

A. Lawrence in View of Mishra Would Not Have Suggested to One Having Ordinary Skill in the Art the Subject Matter of Claims 52, 53, 68, 69, 73, 74, 82, 87, 92, and 93.

Claims 52, 53, 68, 69, 73, 74, 82, 87, 92, and 93 stand at least twice rejected under 35 U.S.C. § 103(a) over Lawrence in view of Mishra. Independent claim 52 defines a method for device management in a grouped server environment. The method involves creating a request to control a device on a desktop by a device service. The device service is coupled to a device manager in a first server. The device manager transfers the request to a second device manager in a second server. The device is allocated to device service through the second device manager. Independent claim 82 defines a grouped server system. The grouped server system includes a plurality of servers with device managers. The servers also include device services for implementing device drivers. The desktop units are attached to the servers and are coupled to a corresponding device manager on the server. The device managers are used to broker control of the devices on the desktop units to device services. Independent claim 93 defines a computer readable medium for implementing an instruction set for maintaining a persistent connection between device located on a desktop unit and a single device manager for interfacing device service with the device. The computer readable medium includes a first set of instructions for establishing a communication path between the desktop unit and a first device manager located in a first server. If the first device manager fails, then the device service is interfaced with the device manager through a second communication path established between the desktop unit and a second device manager located in a second server.

The Examiner asserts that Lawrence discloses the features of independent claims 52, 82, and 93.

(i) Neither Lawrence nor Mishra teaches a grouped server environment.

Lawrence teaches mechanism for allowing a printer to be locally attached to a set top box, whereby the set top box can obtain an appropriate printer driver from the cable head end on the digital cable network in response to a request from the set top box, thereby allowing the set top box to print to the locally attached printer (see, Lawrence, Column 2, lines 40-47). In spite of this, the Examiner asserts that Lawrence teaches a system and method for device management in a grouped server environment. The Examiner compares the set top box in Lawrence with the desktop unit of the claimed invention. Assuming that this comparison is right (a proposition with which the Applicants disagree), Lawrence does not teach having even one server let alone a grouped server environment. In addition, in Lawrence, a request to obtain a driver is originated at the set top box (i.e., the desktop unit, as asserted by the Examiner). Whereas, in the claimed invention, the request to control a device on a desktop unit originates at the server and the request is managed through the device managers on one or more servers.

The claimed invention further defines the second device manager allocating the device to the device service coupled to the first device manager. This way the device service on the first server can control the device on a desktop unit connected to a second server. In contrast, the printer is controlled by the set top box connected to the printer. For example, a user may print some of the content provided through the cable service through the printer locally attached to the set top box. Similarly, the cable head end may print data only through the printer that is attached to the set top box coupled to the cable head end and not through the printer attached to set top boxes coupled to other cable head ends. The cable head end obtains printer driver for the set top box according to the make and model of the attached printer (see, Lawrence, column 18, lines 25-27). The cable head end also obtains another printer driver for use by the cable head end to send print data to the set top box (see, Lawrence, column 18, 48-50). Whereas, in the claimed invention, the device service of one sever can control the devices connected to DTUs coupled to other servers.

The Examiner then offers the combination of Lawrence in view of Mishra. The Examiner alleges that Mishra teaches management and deployment of applications,

components and services across a computer network when an object is not available locally by searching various other class stores on the internet (see, Final Office Action dated June 8, 2005, page 4, lines 4-8). The Examiner is correct in that Mishra teaches a computer network with centralized management and deployment of applications. However, the computer network in Mishra includes centralized class stores such that application and components are made centrally available so that updates to components or applications are only performed once in a centralized location, whereby users may automatically obtain new versions of the applications as they become available (see, Mishra Column 1, lines 2-9). There is nothing in Mishra that teaches or suggests a grouped server environment where a device connected to a second server is controlled by a device service in a first server through a device manager in the second server. In fact, according to Mishra, all the devices are receiving the updates from a central location and not from devices that is connected to different servers. The Examiner cites Col 1, lines 65-67, and column 2, lines 1-35 of Mishra, in support of the allegation that Mishra teaches that when an object is not available locally, a search is done for various class stores are conducted on the internet (see, Final Office Action dated June 8, 2005, page 4). In fact, the according to Mishra, the class store uses the Windows NT® Active Directory as it centralized store, and the class store is a container object in the Active Directory (see, Mishra column 5, lines 15-19). As can be seen, there is one centralized store where all the class stores are stored. There is nothing that suggests searching the internet for various class stores.

(ii) Lawrence does not teach transferring a request from a first device manager in a first server to a second device manager in a second server.

If the cable head end is what the Examiner considering to be the server, then Lawrence does not teach transferring a request from one cable head end to another cable head end as suggested by the Examiner. If the Examiner's assertion is accepted (i.e., the cable head to be the server, and the set top box to be the DTU), then in Lawrence the request originates in the DTU and the request is transferred to the server. The cable head end then obtains the printer driver and forwards the printer driver to the set top box. While, in the claimed invention, the servers include device managers, which receive a request from the device service, which reside in the same server. The device manager forwards the request to other device managers in other servers. In the claimed invention, the initial communication takes place between the device managers within the servers and not between the server and the DTU. There is nothing

in Lawrence that is even remotely suggesting transferring the request to another cable head end or to a device manager in the cable head end.

Another feature that is not presented in Lawrence is the second device manager informing the first device manager of the allocation of the device to the device service in the first server. In fact, Lawrence is incapable of having this feature because Lawrence does not teach a grouped server environment where each server having their own device managers. In Lawrence each set top box makes a request to the set top box's corresponding cable head end and the cable head end forwards the printer driver to the set top box. Applicants submit that Lawrence would not have suggested to one having ordinary skill in the art the claimed invention.

Another feature that is not present in Lawrence is establishing a second communication path between the desktop unit and the second device manager when the first device manager fails. In fact for Lawrence, if the cable head end connected to a set top box malfunctions for any reason, then there is no recourse for the set top box to obtain a printer driver.

Accordingly, for at least the foregoing reasons, independent claims 52, 82, and 93 are patentable under 35 U.S.C. § 103(a) over Lawrence in view of Mishra. Claims 53, 68, 69, 73, and 74, 87, and 92 each of which depend from independent claims 52, and 82 are likewise patentable under 35 U.S.C. § 103(a) over Lawrence for at least the same reasons set forth for claims 52 and 82. In view of the foregoing, the Board is respectfully requested to reverse the rejection of claims 52, 53, 68, 69, 73, 74, 82, 87, 92, and 93 under 35 U.S.C. § 103(a) as being unpatentable over Lawrence.

B. The Combination of Lawrence in view of Mishra Would not Have Suggested to One Having Ordinary Skill in the Art the Subject Matter of Claims 54-61, 78-81, 83-85, and 89-91.

Claims 54-61, 78-81, 83-85, and 89-91 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra. Applicants respectfully request that the Board reverse the rejection of claims 54-61, 78-81, 83-85, and 89-91 under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra. As will be explained below,

the combination of Lawrence and Mishra would not have suggested to one having ordinary skill in the art the subject matter defined in claims 54-61, 78-81, 83-85, and 89-91.

(i) The combination of Lawrence in View of Mishra does not teach establishing a communication path between the first device manager and the second manager.

With regards to claims 54-56, 78-81, and 89-91, the Examiner further asserts that Lawrence in View of Mishra teaches establishing a communication path between the first device manager and the second manager. The independent claims of the claimed invention defines that the first device manager is in the first server and the second manager is in the second sever. As described above, neither Lawrence nor Mishra teaches a first and second server let alone a first and second device manager in the first and second server respectively. In view of the foregoing, the Board is respectfully requested to reverse the rejection of claims 54-56, 78-81, and 89-91 under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra.

In addition, neither Lawrence nor Mishra teaches or suggests creating a first device list and second device list by the first and second device managers. As described above, neither of the references is teaching a grouped server environment. Moreover, none of the references teaches controlling devices connected to the DTUs coupled to other servers. As such, neither Lawrence nor Mishra has a need to generate a device list for the devices attached to the DTUs coupled to other servers. The Examiner cites Column 5, lines 23-67, and column 6, lines 1-24 of Mishra in support of the allegation that Mishra teaches creating a first and second device list (see, Final Office Action dated June 8, 2005, page 5). In fact, the portion relied upon by the Examiner states that “ class store container is the administration unit for the applications deployment. Access and administration privileges are controlled by standard access control properties on the class store container object” (see, Mishra, column 5, lines 28-29). In other words, the access to application and updates are controlled by the policies defined in the class store container object. In view of the foregoing, the Board is respectfully requested to reverse the rejection of claims 57-61, and 83-85 under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra.

(ii) Mishra does not teach controlling a device connected to a second server by a device service in a first server through a device manager in the second server.

Mishra teaches a computer network with centralized management and deployment of applications. The computer network in Mishra includes centralized class stores such that application and components are made centrally available so that updates to components or applications are only performed once in a centralized location, whereby users may automatically obtain new versions of the applications as they become available (see, Column 1, lines 2-9). There is nothing in Mishra that teaches or suggests a grouped server environment where a device connected to a second server is controlled by a device service in a first server through a device manager in the second server. In fact, according to Mishra, all the devices are receiving the updates from a central location and not from devices that are connected to different servers.

Furthermore, as described above, none of the cited references teaches controlling devices connected to DTUs coupled to one server from other servers. Lawrence teaches printing from a printer connected to a set top box by downloading a printer driver for the printer into the set top box and Mishra teaches deploying applications from central location. In view of the foregoing, the Board is respectfully requested to reverse the rejection of claims 62-67 and 88, under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra.

As claims 70-72 and 86 depend from independent claims 52 and 82 they are patentable for the reasons stated above with respect to independent claims 52 and 82. Also, the rejections raised with respect to claims 75-77 has been addressed above with respect to the independent claim 52 and dependent claims 57-61. In view of the foregoing, the Board is respectfully requested to reverse the rejection of claims 70-72, 86, and 75-77 under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra.

To establish *prima facie* case of obviousness, “either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985) See M.P.E.P § 2142. For the reasons discussed above, the combination of Lawrence and Mishra neither expressly nor impliedly suggests either the method defined in claim 52 or the system defined in 82. Furthermore, the Examiner has not articulated any convincing line of reasoning as to why one of ordinary skill in the art would have found the method defined in

claim 52 or the system defined in 82 obvious in light of the teachings of Lawrence with Mishra. Accordingly, the combination of Lawrence and Mishra does not establish *prima facie* case of obviousness against either claim 52 or claim 82.

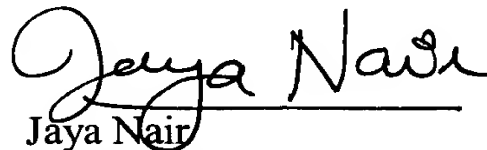
In summary, the combination of Lawrence and Mishra would not have suggested to one having ordinary skill in the art either the features of the method specified in claim 52 or the system specified in independent claim 82. The Examiner improperly characterized the teachings of Lawrence and Mishra to teach a grouped server environment. Accordingly, the combination of Lawrence and Mishra reference does not establish a *prima facie* case of obviousness against either of the independent claims 52, from which claims 53-81 ultimately depend, or independent claim 82, from which claims 83-92 ultimately depend or independent claim 93. Thus, the rejection of claims 52-93 under 35 U.S.C. § 103(a) as being unpatentable over Lawrence in view of Mishra is improper and should be reversed.

C. Conclusion

For the foregoing reasons, the rejection of claims 52-93 under 35 U.S.C. §103(a) as being unpatentable is improper and should be reversed. In formulating the rejection of these claims, the Examiner has improperly characterized the teachings of Lawrence and Mishra and has improperly ignored the features of the claimed invention. When considered objectively without the benefit of the Applicants' teachings, the combination of Lawrence and Mishra does not establish *prima facie case* obviousness against the claimed invention. Accordingly, Applicants respectfully submit that the obviousness rejection under 35 U.S.C. §103(a) is in error, and requests that the Board of Patent Appeals and Interferences reverse this rejection on appeal.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

CLAIMS ON APPEAL

52. A method for device management in a grouped server system, comprising:

creating a request to control a device on a desktop unit from a device service on at least one of a first server and a second server;

transferring said request from a first device manager in said first server to a second device manager in said second sever, said first device manager being coupled to said device service;

allocating said device to said device service via said second device manager; and

informing said first device manager of said allocation via said second device manager;

wherein said device service controls said device by implementing a complete device driver for said device.

53. The method of Claim 52, wherein said request comprises desired capabilities for said device.

54. The method of Claim 52, wherein said first server and said second server operate in a group, further comprising:

establishing a first communication path between said first device manager and said second device manager; and

establishing a second communication path between said device on said desktop unit and said second device manager.

55. The method of Claim 54, wherein said establishing said first communication path comprises receiving a group list, said group list comprising grouping information of device managers in said group.

56. The method of Claim 54, wherein said establishing said second communication path comprises said desktop unit arbitrarily connecting to said second device manager.

57. The method of Claim 52, further comprising:

creating a first device list via said first device manager; and

creating a second device list via said second device manager;

wherein said first device list is segregated from said second device list.

58. The method of Claim 57, wherein said first device list comprises device records for device managed by said first device manager.

59. The method of Claim 57, wherein said first device list comprises device records for devices managed by both of said first device manager and said second device manager and wherein said second device list comprises device records for devices managed by said second device manager.

60. The method of Claim 57, wherein said first device list comprises device records for devices managed by said first device manager and peer device managers in said grouped server system.

61. The method of Claim 60, wherein said grouped sever system comprises said first device manager, said second device manager, said peer device managers, said desktop unit, and a plurality of other desktop units all coupled to each other via an interconnect, further comprising:

identifying which device manager manages which device.

62. The method of any Claim 52, further comprising:

creating a finder in accordance with said request via said first device manager;

wherein said finder comprises a pattern of registered devices to be controlled by said device service.

63. The method of Claim 62, further comprising:

searching a first device list coupled to said first device manager for a device matching said registered devices of said finder.

64. The method of Claim 63, further comprising:

storing said finder in said first server.

65. The method of Claim 64, wherein said transferring said request to said second device manager comprises said second device manager creating a second finder in accordance with said request.

66. The method of Claim 65, further comprising:

searching a second device list coupled to said second device manager for a device matching said second finder.

67. The method of Claim 65, further comprising:

storing said second finder locally in said second server.

68. The method of Claim 52, further comprising:

determining which device manager manages said device; and

informing said device service of said managing device manager.

69. The method of Claim 52, wherein said desktop unit does not have built-in knowledge to directly control said device and wherein a user of said desktop unit needs said device service to operate said device on said desktop unit.

70. The method of Claim 52, further comprising:

creating a first device list in said first server via said first device manager; and

creating a second device list in said second server via said second device manager;

time stamping a first time-stamp on said first device list and a second time-stamp on said second device list said transferring said request to said second device manager comprises said second device manager replacing said second device list in said second server by said first device list in said first server if said second time-stamp is earlier than said first time-stamp.

71. The method of Claim 70, wherein said time stamping occurs when said first and second time lists are created.

72. The method of Claim 70, further comprising:

maintaining a universal clock among all servers in said grouped server system;

wherein said time stamping is based on said universal clock.

73. The method of Claim 52, further comprising:

determining which device manager manages said device; and

forwarding said request to said determined device manager that manages said device.

74. The method of Claim 73, wherein said determined device manager that manages said device is located in one server and said service is located in another server.

75. The method of Claim 73, wherein said first server comprises a first device list, said first device list comprising a device record for said device, further comprising:

transferring said device record to said second device manager in said second server;
and

updating a second device list to include said device record via said second device manager.

76. The method of Claim 75, further comprising:

matching said request with said device record in said second device list;

wherein said determining which device manager manages said device is determined from said second device list.

77. The method of Claim 52, further comprising:

generated a device list for said first manager and said second device manager;

wherein said device list comprises devices managed by a device manager; and

wherein said device list further comprises devices managed by peer device managers,
further comprising:

transferring device data between said peer device managers.

78. The method of Claim 52, further comprising:

maintaining a persistent connection between said desktop unit and a single device manager.

79. The method of Claim 78, further comprising:

establishing a first communication path between said desktop unit and said first device manager;

terminating said first communication path; and

establishing a second communication path between said desktop unit and said second device manager when an event occurs.

80. The method of Claim 79, wherein said event comprises resetting said desktop unit.

81. The method of Claim 79, wherein said event comprises failure of said first device manager.

82. A grouped server system, comprising:

an interconnect;

a plurality of servers, each of said servers having a device manager;

a plurality of device services for implementing device drivers located on said servers;

a plurality of desktop units coupled to said servers via said interconnect, each desktop unit being coupled to one of said device managers;

a plurality of peripheral devices located on said desktop units;

wherein said device managers on said servers broker controls of said peripheral devices on said desktop units by said device services on said servers; and

wherein said device managers are operating in a group.

83. The grouped server system of Claim 82, wherein each of said device managers is coupled to a device list and wherein said device lists are segregated from each.

84. The grouped server system of Claim 83, wherein each of said device lists comprises data of peripheral devices managed by said device manager coupled to said device list.

85. The grouped server system of Claim 84, wherein said device list further comprises data of devices managed by peer device managers coupled to said device list.

86. The grouped server system of Claim 83, further comprising a universal time clock for time stamping said device list as it is generated to ensure that said device list coupled to each of said device managers is not outdated.

87. The grouped server system of Claim 82, wherein each of said device managers can be used to broker a peripheral device managed by a first device manager to a device service coupled to a peer device manager.

88. The grouped server system Claim 82, further comprising a finder comprising scoping rules for a type of said peripheral devices from at least one of said device services.

89. The grouped server system Claim 82, wherein at least one of said device services is coupled to at least one of said device managers, said at least one of said device services communicating a first device report and a first allocation request with said at least one of said device managers.

90. The grouped server system of Claim 89, wherein said at least one of said device services is coupled to at least one of said plurality of desktop units, said at least one of said device services communicating device data of at least one said plurality of peripheral devices with said at least one of said plurality of desktop units via said at least one of said device managers.

91. The grouped server system of Claim 90, wherein said at least one of the said device managers is coupled to said at least one of said plurality of desktop units, said at least one of said device managers communicating a second device report and a second allocation request with said at least one of said plurality of desktop units.

92. The grouped server system Claim 82, wherein each of said plurality of device

serves can implement a complete device driver, wherein each of said device managers can provide said device driver, wherein said device driver remotely controls at least one of said peripheral devices managed by other device managers in said grouped server system, wherein each of said device managers can maintain a first database comprising device data and a second database comprising scoping rules for said at least one peripheral device from at least one of said device services, wherein each of said device managers can search for a match between said first database and said second database, and wherein each of said device managers can forward a request to other device managers in said grouped server system if no match is found.

93. A computer readable medium for implementing an instruction set for maintaining a persistent connection between a device located on a desktop unit and a single device manager for interfacing a device service with the device, the computer readable medium comprising:

a first instruction set for establishing a first communication path between said desktop unit and a first device manager;

a second instruction set for establishing a second communication path between said desktop unit and a second device manager when an event occurs;

wherein said device comprises one of a keyboard, a mouse, a speaker, a scanner, and a microphone;

wherein said event comprises failure of said first device manager;

wherein said first device manager and said second device manager operate in a group;

wherein said device service implements a driver to control said device and is located in a first server; and

wherein said second device manager is located in a second server and said first device manager is located in said first server.

IX EVIDENCE APPENDIX

Not Applicable

X RELATED PROCEEDINGS APPENDIX

Not Applicable